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The instant invention concerns a heating system for a motor vehicle, which at least one heating module with a combustor exhibits, the fuel and/or gas burns, in order to produce warm ones, which becomes at the vehicle interior or in the vehicle interior located air which can be supplied or at refrigerants in the refrigerant circuit of the vehicle engine discharged. With the motor vehicle it concerns in particular a passenger car, a commercial vehicle or a camping vehicle.

Such heating system is for example from DE-PS 975,062 known, whereby currentup the Kühlwasserwärmetauschers, by means of which waste heat from engines the heating of the vehicle interior of air which can be supplied used becomes, in the air supply channel to the vehicle interior an heat exchanger disposed it is, which delivers from the combustor the generated heat to in the air supply channel the flowing air, before this occurs the Kühlwasserwärmetauscher. Adverse with this arrangement is that the heat input from the combustor relative far remote of the locations made at which the heated air then actual provided is to become for example within the windshield range or within the floor space range. This leads on the one hand to an unsatisfactory adjustability of the heating power and on the other hand to a bad efficiency.

It is object of the instant invention to create a heating system for a motor vehicle with at least one burn heating module with which the heating power can become if possible flexible set concerning the local distribution in particular and furthermore a better efficiency becomes achieved.

This object becomes dissolved according to invention 1 according to claim by a heating system. Because several spatial separate heat exchangers are provided and these if possible close at the locations disposed are, is to become provided at which the heater, will on the one hand a better efficiency achieved and on the other hand can the heating power both regarding their overall height and regarding its local distribution flexible set become, when this is with known heating systems the case, which exhibit only a central heat exchanger in the air supply channel.

▲ top Preferred embodiments of the invention are in the Unteransprüchen indicated.

In the following the invention becomes exemplarily more near explained on the basis the accompanying drawing, the which schematic structure of a heating system according to invention shows.

In accordance with the single fig three spatial from each other separate heating modules provided, a blower and a burner unit 10 as well as two electric heaters 12 and 14 are i.e. with a heating system for a motor vehicle. The burner unit 10 burns fuel or gas to already warm up in order to produce hot combustion gases and to supply by it several heat exchangers 16 with warm ones, which provided is, in order the vehicle interior supplied or air at several from each other separate locations, located in the vehicle interior. Alternate ones can serve at least some the heat exchanger 16 to warm up refrigerants in the refrigerant circuit of the vehicle engine. The heat input of the burner unit 10 to the heat exchangers 16 can take place either direct via transmitting the hot combustion gases or indirect via the fact that Mediums circulating by the heat exchangers are provided, which from the hot combustion gases heated will, in order to supply the single heat exchangers 16 with warm ones. The heat exchangers 16 can be, as in the fig indicated, parallel and/or serial switched. The heat exchangers 16 as well as the electric heaters 12 and 14 are if possible close disposed at the locations, at which the heatingwarm is to become provided. It can concern for example around the range the bottom respective vehicle seats or the entrance range of the air into the vehicle interior. Case the heat exchangers 16 or a part of the heat exchangers of 16 refrigerants in the refrigerant circuit of the vehicle engine to warm up are to take place, should also here the placement of the heat exchangers as close ones as possible at the locations, at which the heat input is most appropriate. Also the electric heaters 12 and 14 can become the cooling agent heating provided if necessary. Preferably the electric heaters 12 and 14 are in such a way wired that they become applied with electric power only if the vehicle generator supplies the required power, in order to preserve the vehicle battery.

The heating modules 10, 12 and 14 become 18 controlled, whereby the heating power of each heating module 10, of a common control device, 12 and/or. 14 single controlled will can. In this way a simple operation of the heating system becomes ensured, whereby a more flexible control of the heating power as well as a higher efficiency are more achievable nevertheless, than this would be with use only a single heating module the case.

It understands itself that the heating system shown in the fig is additional provided to the conventional vehicle heating system by means of waste heat from the refrigerant circuit, if the vehicle exhibits a cooling agent-cooled engine.

Preferably it concerns with the motor vehicle a passenger car, a commercial vehicle or a camping vehicle.



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1. Heating system for a motor vehicle, with at least one heating module, which exhibits a combustor (10), the fuel or gas burns, in order, which are in the exchange with the vehicle interior or in the vehicle interior of located air which can be supplied or with refrigerant in the refrigerant circuit of the vehicle engine stand and if possible close disposed at the locations, at which the heatingwarm provided to produce for warm ones for the supply of several spatial from each other separate heat exchangers (16) become is, as well as a control device (18) for steering the heating power of the heating module.
2. Heating system according to claim 1, characterised in that the combustor (10) the heat exchangers (16) direct with hot combustion gases supplied.
3. Heating system according to claim 1, characterised in that the combustor (10) by means of hot combustion gases circulating Mediums heated, which the heat exchangers (16) with warm one supplied.
4. Heating system in accordance with one of the preceding claims, characterised in that at least an other heating module provided is, the formed of an electric heater (12, 14) becomes, whereby all heating modules (10, 12, 14) become common controlled of the control device (18).
5. Heating system in accordance with one of the preceding claims, characterised in that it with the motor vehicle around a passenger car, a commercial vehicle or a camping vehicle acts.

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